

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

EVOLVED WIRELESS, LLC,)	
Plaintiff,	)	FILED UNDER SEAL
	)	CONFIDENTIAL ATTORNEYS
v.)	EYES ONLY
APPLE INC.,)	C.A. No. 15-cv-542-JFB-SRF
Defendant.)	JURY TRIAL DEMANDED
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EVOLVED WIRELESS, LLC,)	
Plaintiff,)	FILED UNDER SEAL
)	CONFIDENTIAL ATTORNEYS
v.	)	EYES ONLY
HTC CORPORATION and	)	C.A. No. 15-cv-543-JFB-SRF
HTC AMERICA, INC.,	)	JURY TRIAL DEMANDED
Defendants.)	
<hr/>		
EVOLVED WIRELESS, LLC,)	
Plaintiff,	)	FILED UNDER SEAL
	)	CONFIDENTIAL ATTORNEYS
v.	)	EYES ONLY
LENOVO GROUP LTD.,	)	C.A. No. 15-cv-544-JFB-SRF
LENOVO (UNITED STATES) INC., and	)	JURY TRIAL DEMANDED
MOTOROLA MOBILITY,)	
Defendants.)	
<hr/>		
EVOLVED WIRELESS, LLC,)	
Plaintiff,	)	FILED UNDER SEAL
	)	CONFIDENTIAL ATTORNEYS
v.	)	EYES ONLY
SAMSUNG ELECTRONICS CO., LTD.	)	C.A. No. 15-cv-545-JFB-SRF
and SAMSUNG ELECTRONICS	)	JURY TRIAL DEMANDED
AMERICA, INC.,)	
Defendants.)	

EVOLVED WIRELESS, LLC,)	
	)	FILED UNDER SEAL
Plaintiff,	)	CONFIDENTIAL ATTORNEYS
	)	EYES ONLY
v.)	
	)	C.A. No. 15-cv-546-JFB-SRF
ZTE (USA) INC.,)	
	)	JURY TRIAL DEMANDED
Defendant.)	
)	
)	

**PLAINTIFF'S BRIEF IN OPPOSITION TO DEFENDANTS' MOTION FOR
SUMMARY JUDGMENT ON NON-INFRINGEMENT**

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I. Introduction

Evolved Wireless has presented substantial evidence to support a factual determination of infringement of the '373 and '236 Patents by the Defendants. After losing all 20 terms that Defendants proposed for construction during the *Markman* procedure, Defendants now assert waived and incorrect claim construction arguments in an attempt to muster non-infringement defenses. Yet, Defendants failed to provide the Court with all of the relevant facts, including testimony from Defendants' own expert witnesses. When the Court considers all of the facts, it is clear Defendants' arguments are meritless. As such, Defendants' motion should be denied.

II. Nature and Stage of the Proceedings

On June 25, 2015, Evolved Wireless filed this patent infringement lawsuit alleging, *inter alia*, that each of the named Defendants infringed multiple claims of two standard-essential patents relating to LTE or 4G, wireless communication systems—United States Patent Nos. 7,809,373 (“the '373 Patent”) and 7,881,236 (“the '236 Patent”). D.I. 1.¹ Defendants identified 20 terms for construction across five originally asserted patents,² including 3 terms from the '373 Patent and 11 terms from the '236 Patent. *See* Ex. 1;³ D.I. 54-1 at 7-8. On November 14, 2016, the Court issued its claim construction order, agreeing with Evolved Wireless for 22 of the 23 disputed claim terms. *See* D.I. 110. On October 6, 2016, Defendants jointly submitted their brief seeking summary judgment of non-infringement. D.I. 223. The pretrial conference is set for March 27, 2018 and trial begins on April 23, 2018.

¹ Docket entries refer to case number 15-cv-00542. Appendix A to this brief includes a chart identifying the proper citations to the record in each of the six cases.

² Evolved originally asserted infringement of five patents, including the '236 and '373 Patents.

³ Exhibits are attached to the declaration of Ryan M. Schultz filed concurrently herewith.

III. Summary of Arguments

A. There is Substantial Evidence Demonstrating that Each of the Defendants Infringe the Asserted Claims of the '373 Patent.

The evidence of record clearly demonstrates that the Defendants' accused products meet every limitation of the asserted claims of the '373 Patent. Defendants' contention that their accused products do not transmit and receive a "dedicated preamble" is directly contradicted by the detailed testimony of Evolved Wireless's technical expert, Dr. Cooklev; the LTE technical standard, and the testimony of Defendants' own technical experts. As detailed below, during the handover process: (1) each of Defendant Samsung's accused base stations send a dedicated preamble, and (2) each of Defendants' accused mobile devices receive a dedicated preamble.

Defendants' contentions to the contrary are based upon an unreasonably narrow and untimely construction of the claim term "preamble." The undisputed record before this Court—as confirmed by both Dr. Cooklev and Defendants' own technical experts—shows that the claimed "preamble" is understood by those of ordinary skill in the art to broadly encompass preambles expressed as codes or indices, and preambles expressed as sequences. Indeed, Apple's technical expert, Dr. Bims, conceded that "preamble" in the '373 Patent is understood by those of skill in the art to refer to "*anything* that can be configured to permit the terminal to access the target base station." [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] The evidence of record compels a finding of literal infringement. At the very least, however, this evidence is sufficient to raise a genuine issue of material fact that precludes summary judgment of non-infringement.

Even under the incorrect and untimely construction now proposed by Defendants, the [REDACTED] [REDACTED] would at least be equivalent to a "preamble"

sequence.” Defendants’ contentions that Evolved Wireless waived this argument by failing to anticipate Defendants’ untimely effort to raise new claim construction issues is without merit.

Further, Defendants’ contention that the accused products do not meet the limitation that the claimed “dedicated preamble” be “used only for a specific terminal” is similarly contradicted by substantial evidence. As shown by both Dr. Cooklev and the LTE standard, the *ra-PreambleIndex* uniquely identifies the preamble sequence in a one-to-one relationship in each cell during a handover procedure. Again, Evolved Wireless contends that the evidence of record compels a finding of literal infringement for each asserted claim of the ‘373 Patent. At the very least, this evidence raises a genuine issue of material fact precluding summary judgment.

B. There is Substantial Evidence Demonstrating that Each of the Defendants Infringe the Asserted Claims of the ’236 Patent.

The evidence of record clearly demonstrates that the Defendants’ accused products also meet every limitation of the asserted claims of the ’236 Patent. Each of the asserted claims of the ‘236 Patent cover operations of the accused devices during *transmission* of data. Evolved Wireless has presented detailed evidence through its technical expert Dr. Cooklev—based upon both the LTE standard and the source code utilized in the accused products—demonstrating that during the claimed “transmitting” steps, [REDACTED]

[REDACTED]

Defendants’ arguments to the contrary are based *entirely* on an improper, waived claim construction because each of the asserted claims relates only to the claimed “transmitting” process, not “*retransmission*” process. Defendants also fail to show how the accused products might work during the wholly separate *retransmission* operation. Moreover, even if a factfinder were to consider the hypotheticals, there is at least a genuine issue of fact whether [REDACTED]

[REDACTED] send the claimed “data stored in the

Msg3 buffer.” Thus, Defendants’ motion for summary judgment should be denied.

IV. Statement of Facts

A. The Technology of Evolved Wireless’s Asserted Patents

Mobile devices allow users to transmit and receive information such as voice or data wirelessly over a wide geographical area. Wireless communications networks that divide the service area into relatively small geographic cells are referred to as “cellular.” Ex. 2 ¶ 51. A cell is a coverage area that is serviced by a single cell site such as a base station. *Id.* The base stations serve as a fixed point of communication, e.g., a cell tower, for mobile devices to connect with other mobile phones and with outside networks. *Id.* When a mobile device with an ongoing call or data session moves away from the coverage area of one base station (e.g., the “source base station”) and towards the coverage area of the second base station (e.g., the “target base station”), it is necessary to *handover* the mobile device’s radio connection to avoid an interruption of service. *Id.*

In LTE systems, a mobile device uses a random access channel (“RACH”) to establish communications with a base station. *Id.* ¶¶ 92-95. For example, when a mobile device is powered on, the device uses a random access procedure to access the base station. *Id.* ¶ 93. Mobile devices also use the RACH in a handover procedure. *Id.* ¶ 104. To begin the random access procedure, the mobile device transmits a randomly selected preamble sequence. *Id.* ¶ 95.

B. The ’373 Patent

The inventions claimed in the ’373 Patent are directed to an improved handover of a mobile device from one base station to another by using the claimed “dedicated preamble.” A preamble is an identifier used, for example, to synchronize and identify a mobile device to a base station. Ex. 3 at 2:54-58; 6:45-49. One problem in prior art communications systems was that preambles were randomly selected, which meant it was possible for more than one mobile device

to select the same preamble at the same time. When this occurred, the RACH message was susceptible to what is referred to as a “collision.” Thus, the base station could not determine which device sent the preamble and the handover was disrupted. *Id.* at 6:38-49. The invention of the ’373 Patent solved this problem by communicating a “previously defined signature”—i.e., the claimed “dedicated preamble”—prior to the handover procedure. *Id.* at 6:49-60. With this improved system, the selected preamble was “dedicated” to a given device during the handover process, thereby avoiding collisions and related interruptions of service. Ex. 2 ¶ 104.

1. The Claims of the ’373 Patent are not Limited to Transmitting or Receiving a “Dedicated Preamble Sequence”

The ’373 Patent contains independent claims covering methods of “transmitting” and “receiving” “access information” performed by the source base station (claim 1), the target base station (claim 8), and the mobile device (claim 15). Additionally, claims 24 and 25 are directed at “mobile terminals,” or mobile devices, capable of performing the claimed handover. Evolved Wireless has asserted claims 15 through 21 and 23 through 25 (covering the operation of mobile devices) against all defendants, as well as claims 1 through 10, 12, and 13 (covering the operation of base stations) against the Samsung defendants. The independent method claims are reproduced below.

Mobile Terminal

15. A method of receiving access information in a mobile communications system, the method comprising:
 receiving access information from a source base station after a handover request is accepted by a target base station,
 wherein the access information includes preamble information for a random access procedure,
 wherein the preamble information is a dedicated preamble used only for a specific terminal, and
 wherein the dedicated preamble is determined by the target base station; and
 performing the random access procedure with the target base station using the received access information, such that the access information is configured to

permit the terminal to access the target base station.

Significantly, however, none of the asserted claims require a “*dedicated preamble sequence*.” Similarly, the specification of the ‘373 Patent does not define the term “dedicated preamble” to require a *dedicated preamble sequence*.

2. Defendants’ Infringe the ’373 Patent

Evolved Wireless’s technical expert, Dr. Cooklev, has submitted a detailed report mapping each limitation of Defendants’ accused products to the asserted claims, including each use of the “dedicated preamble” limitation. Ex. 2 ¶ 970-84. As explained by Dr. Cooklev, Defendants’ products meet the limitation of a “dedicated preamble” by [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

The RACH-ConfigDedicated element “is used to specify the dedicated random access parameters” and includes the *ra-PreambleIndex* field. Ex. 2 ¶ 970; Ex. 4 at 125. As detailed in the LTE standards—[REDACTED]—the *ra-PreambleIndex* is defined as the “[e]xplicitly signalled Random Access Preamble in TS 36.321.” Ex. 2 ¶ 970; Ex. 4 at 125.

RACH-ConfigDedicated field descriptions	
<i>ra-PreambleIndex</i>	Explicitly signalled Random Access Preamble in TS 36.321 [6].
<i>ra-PRACH-MaskIndex</i>	Explicitly signalled PRACH Mask Index in TS 36.321 [6].

Other LTE standard sections further confirm that use of the *ra-PreambleIndex* constitutes explicit signaling of the “the random access preamble.” In section 5.1.2 titled “Random Access Resource selection,” TS 36.321 provides that “[i]f *ra-PreambleIndex* (Random Access Preamble) and *ra-PRACH-MaskIndex* (PRACH Mask Index) have been explicitly signaled,” then the mobile device should select “the Random Access Preamble and the PRACH Mask Index

[that] are . . . explicitly signalled." Ex. 5 at 13 (emphasis in original); Ex. 6 at 170:22-172:18.

5.1.2 Random Access Resource selection

The Random Access Resource selection procedure shall be performed as follows:

- If $ra\text{-PreambleIndex}$ (Random Access Preamble) and $ra\text{-PRACH-MaskIndex}$ (PRACH Mask Index) have been explicitly signalled and $ra\text{-PreambleIndex}$ is not 000000:
 - the Random Access Preamble and the PRACH Mask Index are those explicitly signalled.
- else the Random Access Preamble shall be selected by the UE as follows:

For example, test case numbers 7.1.2.1 and 8.2.4.1 determine whether the mobile device transmits the preamble sequence corresponding to the signaled preamble index. Ex. 2 ¶ 973; Ex. 7 at 439, 971.

██████████ Dr. Cooklev's analysis did not stop with assessment of the LTE standard. Dr. Cooklev also analyzed the source code utilized in numerous accused products. *Id.* ¶¶ 975-78. ██████████

Also, Dr. Cooklev directed the independent testing firm TechPats to conduct emulation testing on a representative sample of 26 accused products. Ex. 2 ¶ 248. The emulation testing confirmed that when an accused product receives the RRC message with an explicitly signaled *ra-PreambleIndex*, the accused product transmits the preamble sequence corresponding to the *ra-PreambleIndex*. *Id.* ¶ 976; Ex. 8 at 23-31. Further, TechPats collected real-world data and confirmed that an LTE cell in Makena, Illinois operated in the same manner as the emulation tests. Ex. 2 ¶ 978; Ex. 9 at 16-21.

3. The Defendants' Own Experts Agree that the Claimed "Dedicated Preamble" is not Limited to a Dedicated Preamble Sequence.

Dr. Kakaes, the technical expert proffered by Defendants HTC, Motorola, Samsung, ZTE, and Microsoft, opined that a person of ordinary skill in the art of the '373 Patent would understand "the term 'preamble' to be broad enough to encompass *a code or signature.*" Ex. 10 ¶ 151 (emphasis added). Dr. Kakaes' interpretation was based on the prior art telecommunications standard WCDMA, which defined a *preamble sequence* as a function of two variables, "*a preamble scrambling code . . . and a preamble signature.*" *Id.* ¶¶ 150-51 (emphasis added). Similarly, Dr. Bims, the technical expert proffered by Apple, acknowledged that the claims of the '373 Patent do not include the term "preamble sequence." Ex. 11 at 110:11-16. Dr. Bims further opined that a POSITA would understand the term "dedicated preamble" to refer to "*anything* that can be configured to permit the terminal to access the target base station." *Id.* at 110:24-111:4 (emphasis added). Thus, according to Defendants' own experts, the claimed "dedicated preamble" is not limited to a *preamble sequence*.

Consistent with this common understanding of the term preamble, both Dr. Kakaes and Dr. Bims opined that various prior art systems disclosed uses of "preambles" that were not "*preamble sequences.*" For example, in his opening invalidity report, Dr. Bims opined that a "POSITA would understand that the spreading code word disclosed in Hu '020 is a form of preamble" and meets the "dedicated preamble" limitation of the '373 Patent. Ex. 12 ¶ 742. Significantly, however, the Hu reference does not describe a "spreading code word" as a preamble sequence; rather the "spreading code word" refers to one of many types of access resources, such as time and frequency. Ex. 13 at EW_DEFENDANTS0001809; Ex. 14 ¶¶ 174-75. Dr. Kakaes also opined that the Hu reference discloses the claimed "dedicated preamble" because "'preamble' is broad enough to encompass a code, though 'preamble' is not necessarily

limited to a code and its meaning depends on the particular communication system in which the preamble is used.” Ex. 10 ¶ 154.

Similarly, Dr. Bims opined that UIUC codes utilized in the WiMax communication standard disclosed the “dedicated preamble.” Ex. 11 at 194:16-19. Significantly, however, just like the *ra-PreambleIndex* used in the LTE standard, the UIUC codes of the WiMax standard are integers with a value from 0 through 15. Ex. 15 at 337. The UIUC codes that Dr. Bims testified constituted disclosure of a “dedicated preamble” are undisputedly not a “preamble *sequence*.” *Id.*; see Ex. 14 ¶ 462 (“As the 802.16-2004 standard shows, the UIUC code refers to a particular uplink opportunity.”). Dr. Bims also identified other types of codes and signatures referenced in prior art disclosures that he claimed disclosed the “dedicated preamble” limitation, including a “logical channel defined by a code” in Etemad and a “particular (dedicated) RACH preamble signature” from Wang. Ex. 12 ¶¶ 901-02. These channels, codes and signatures are not “preamble *sequences*.” *See, e.g.*, Ex. 14 ¶ 449.

C. The '236 Patent

The '236 Patent also relates to the improved random access procedure incorporated into the LTE telecommunications standard. As discussed above, the random access procedure is used to establish communications between a mobile device and a base station. For example, when a mobile device is first powered on, the random access procedure is used to connect the device with the base station. The random access procedure consists of four message exchanges between the base station and mobile device. Ex. 2 ¶ 92.

As shown in Figure 5 of the '236 Patent, the random access procedure begins with the mobile device transmitting the random access preamble, called message 1 (shown in step S501). *See* Ex. 16 at Fig. 5. Second, the base station responds to message 1 with the random access response (“RAR”) message, referred to as message 2 (shown in step S502). Third, a scheduled

transmission of data is sent from the mobile device to the base station, referred to as message 3 (“Msg3”) (shown in step S503). Finally, the base station sends a contention resolution back to the mobile device, referred to as message 4 (shown in step S504).

Specifically, the asserted claims of the ’236 Patent ensure that the right data is transmitted in message 3. Message 3 is the first scheduled transmission that the mobile device makes to the base station, such that the mobile device needs an uplink grant from the base station for sending message 3. Ex. 2 ¶ 100. Typically, the uplink grant for message 3 comes in the random access response, message 2. *Id.* ¶ 101. The random access procedure can fail if unexpected data is transmitted in message 3 in response to the wrong uplink grant received by the mobile device. *Id.* ¶ 181. For example, in the middle of an ongoing random access procedure, the mobile device may receive an uplink grant on the physical downlink control channel (“PDCCH”), as shown in Figure 8 from the ’236 Patent in step S805. *See id.* ¶ 179. The ’236 Patent ensures successful completion of the random access procedure by ensuring the right data is transmitted in message 3 in the correct scenarios.

1. The Asserted Claims of the ’236 Patent Cover “Transmission”

The two independent claims of the ’236 Patent cover a “method of transmitting data by a user equipment through an uplink,” (claim 1), and a user equipment capable of performing the same (claim 7). Claim 1 is reproduced below.

1. A method of *transmitting* data by a user equipment through an uplink, the method comprising:
receiving an uplink grant (UL Grant) signal from a base station on a specific message;
determining whether there is data stored in a message 3 (Msg3) buffer when receiving the UL Grant signal on the specific message;
determining whether the specific message is a random access response message;
transmitting the data stored in the Msg3 buffer to the base station using the UL Grant signal received on the specific message, if there is data stored in the Msg3 buffer when receiving the UL Grant signal on the specific message and

the specific message is the random access response message; and transmitting new data to the base station in correspondence with the UL Grant signal received on the specific message, if there is no data stored in the Msg3 buffer when receiving the UL Grant signal on the specific message or the specific message is not the random access response message.

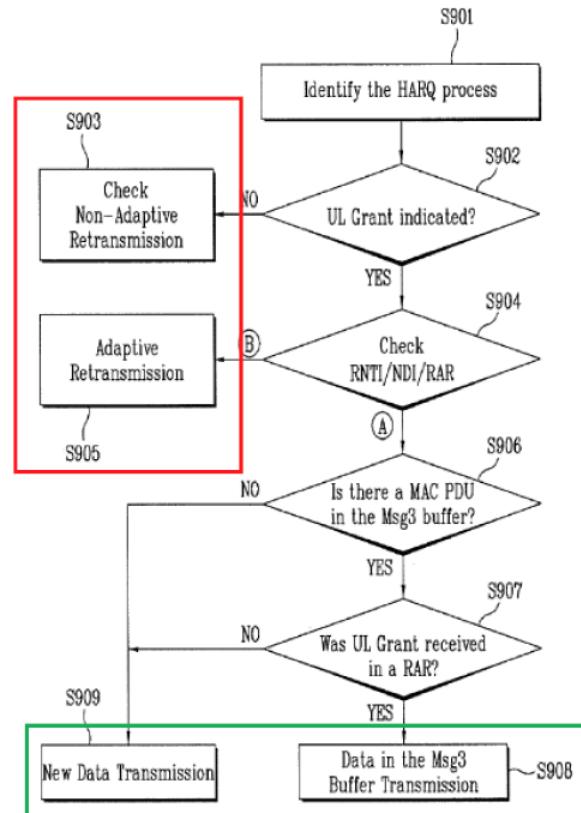
Ex. 16 at Cl 1 (emphasis added).

Claim 1 claims “transmitting the data stored in the Msg3 buffer” in one particular scenario, otherwise “transmitting new data to the base station in correspondence with the UL Grant” in another scenario. The corresponding apparatus claim, Claim 7, has similar limitations as Claim 1. Importantly, the asserted claims do not claim “retransmission” or “retransmitting.”

2. The '236 Patent Distinguishes Transmission from Retransmission

The specification of the '236 Patent repeatedly distinguishes transmissions from retransmissions.

As shown in Fig 9 to the right, the specification makes clear that “transmitting” is not the same process as retransmission. The flow chart in Fig. 9 shows that retransmission in steps S903 or S905 (red box) occurs in certain scenarios. However, the asserted claims are directed at the “transmitting” steps in S908 and S909 (green box) because these transmission steps indicate what data is sent in message 3 after consideration of the claimed factors of whether data is stored in the Msg3 buffer (S906) and if the uplink grant was received in a random access response (S907). Importantly, the occurrence of retransmission in S903 and S905 is not impacted by factors S906



and S907. As such, the specification, like the asserted claims, is clear that transmission is not the same operation as retransmission.

Figure 6 similarly distinguishes *transmissions* from *retransmissions*. Step S602 in Figure 6 is labeled as an “initial transmission,” while step S604 is labeled as a “retransmission.” Ex. 16 at Fig. 6. These steps are described in the specification, where in step S602, “the UE may *transmit* the data to the eNode B,” while in step S604, “the UE may determine that the transmission of the data to the eNode B has failed and *retransmit* the same data.” *Id.* at 10:12-16, 27-32 (emphasis added). Thus, the specification is replete with examples demonstrating that “transmission” is not the same as “retransmission.” As such, the claimed “transmitting” steps cannot include “retransmitting” as proffered by Defendants.

3. LTE Standard is consistent that “transmission” is not the same as “retransmission”

Consistent with the ’236 Patent, the LTE standard also distinguishes transmissions from retransmissions. The LTE standard distinguishes “[n]ew transmissions” from “[a]daptive retransmissions” and “[n]on-adaptive retransmissions.” *See* D.I. 227 at A-0866-67 § 5.4.2.2. Essentially mirroring the claims of the ’236 Patent, the LTE standard explains the operation where “if an uplink grant has been indicated” and “if the uplink grant was received in a Random Access Response,” the mobile device should either “obtain the MAC PDU to *transmit* from the Msg3 buffer” or “obtain the MAC PDU to *transmit* from the ‘Multiplexing and assembly’ entity.” *Id.* at A-0866 (emphasis added). If the mobile device does not transmit either Msg3 buffer data or new data from the multiplexing and assembly entity as part of an initial transmission, the mobile device performs “an adaptive retransmission” or “a non-adaptive retransmission.” *Id.* In other words, a separate and distinct operation from “transmission.”

V. Argument

A. Legal Principles

“[S]ummary judgment of non-infringement can only be granted if, after viewing the alleged facts in the light most favorable to the non-movant, there is no genuine issue whether the accused device is encompassed by the claims.” *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1304 (Fed. Cir. 1999) (citing *Naderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 245 (1986)). On summary judgment, all facts are to be viewed in the light most favorable to the non-moving party. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255 (1986). “The inquiry performed is the threshold inquiry of determining whether there is the need for a trial—whether, in other words, there are any genuine factual issues that properly can be resolved only by a finder of fact because they may reasonably be resolved in favor of either party.” *Id.* at 250.

B. Substantial Evidence Precludes Summary Judgment of Non-Infringement for the '373 Patent

1. Substantial Evidence Shows Defendants Literally Infringe the “Dedicated Preamble” Limitation

Evolved Wireless’s technical expert, Dr. Cooklev, presents substantial evidence that the accused products literally infringe the “dedicated preamble” limitation. For example, Dr. Cooklev analyzed the LTE standard, which implements dedicated pREAMbles by (1) transmitting a preamble index from the source base station to the mobile device and (2) transmitting a preamble sequence from the mobile device to the target base station. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]. Although this evidence is alone is sufficient to present a *prima facie* case of infringement for each of Defendants’ LTE compliant devices, Dr. Cooklev’s detailed analysis went much further and included a review of [REDACTED]

[REDACTED]

Additionally, Dr. Cooklev directed the independent testing firm TechPats to perform emulation testing on a representative sample of 26 accused products, which further confirmed the results of Defendants' LTE conformance testing. Further, Dr. Cooklev analyzed live network field data that showed a source base station sending a preamble (expressed in the form of the *ra-PreambleIndex*) and a mobile device transmitting the same preamble (expressed in the form of a preamble *sequence*) back to the target base station.

On summary judgment, the Court does not weigh the evidence or make credibility determinations, as these functions are reserved for trial. “[A]fter the court has defined the claim with whatever specificity and precision is warranted by the language of the claim and the evidence bearing on the proper construction, the task of determining whether the construed claim reads on the accused product is for the finder of fact.” *PPG Indus. v. Guardian Indus. Corp.*, 156 F.3d 1351, 1355 (Fed. Cir. 1998). “It is not for the court to determine the credibility and veracity of the witnesses and their studies, as these questions are properly reserved for the jury.” *Pordy v. Land O’Lakes, Inc.*, 97 F. App’x 921, 927 (Fed. Cir. 2004). Here, substantial evidence supports literal infringement of the “dedicated preamble” limitation. At a minimum, a genuine issue of material fact precludes summary judgment of non-infringement.

Dr. Cooklev opines that Defendants’ accused products infringe the ’373 Patent [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] The RACH-ConfigDedicated element “is used to

specify the dedicated random access parameters” and includes the ra-PreambleIndex field. Ex. 2 ¶ 970; Ex. 4 at 125. As explained in the LTE standard, the ra-PreambleIndex is defined as an integer value from 1 to 64 and described as the “[e]xplicitly signalled Random Access Preamble in TS 36.321.” LTE Technical Specifications 36.321 also defines the “ra-PreambleIndex” as the explicitly signaled random access preamble. *See* Ex. 5 at 13; Ex. 6 at 170:22-172:18.

5.1.2 Random Access Resource selection

The Random Access Resource selection procedure shall be performed as follows:

- If *ra-PreambleIndex* (Random Access Preamble) and *ra-PRACH-MaskIndex* (PRACH Mask Index) **have been explicitly signalled** and *ra-PreambleIndex* is not 000000:
 - **the Random Access Preamble and the PRACH Mask Index are those explicitly signalled.**
- else the Random Access Preamble shall be selected by the UE as follows:

The “[t]est procedure sequence” for test case number 7.1.2.1 requires the source base station to “transmit[] an *RRCCConnectionReconfiguration* message to order the UE to perform intra frequency handover to Cell 2, including explicit Random Access Preamble.” Ex. 2 ¶ 972; Ex. 7 at 439. The next step in the LTE conformance testing is described as “[c]heck: does the UE transmit Preamble on PRACH corresponding to *ra-PreambleIndex* in step 1?” Ex. 7 at 439. Test case number 8.2.4.2 includes a similar description of the ra-PreambleIndex as the explicitly signaled dedicated preamble. Ex. 2 ¶ 973; Ex. 7 at 971-80.

Dr. Cooklev also directed TechPats to perform emulation testing to confirm infringement of the '373 Patent. Ex. 2 ¶ 975-78. For example, the emulation testing confirms that when an

accused product receives the RRCConnectionReconfiguration message from the source base station with an explicitly signaled *ra-PreambleIndex*, the accused product transmits the preamble to the target base station. Ex. 2 ¶ 976; *see also* Ex. 8 at 23-31. Further, TechPats collected real-world data and confirmed that an LTE cell in Makena, operated in a manner consistent with the emulation test results described above. Ex. 2 ¶ 978; Ex. 9 at 16-21.

Similar to *EMC Corp. v. Pure Storage, Inc.*, this evidence at least creates a genuine issue of material fact for the jury. 154 F. Supp. 3d 81 (D. Del. 2016). In *EMC*, the defendant sought summary judgment that its product does not infringe the claim term “return[] the identifier,” because the accused product “takes the identifier as input and returns an index representing the identifier” as output. *Id.* at 95-96. The plaintiff’s expert “testified that returning an index is the same as returning an identifier to a person of skill in the art because indexes are often used to refer to data in a computer system.” *Id.* at 96. Thus, the court denied summary judgment, finding that “[t]here is a genuine dispute of material fact regarding whether the FlashArray ‘return[s] the identifier,’ either literally or under the doctrine of equivalents, by returning an index representing the identifier to a calling routine that requested it.” *Id.*

In their motion, Defendants assert that Dr. Cooklev testified that a “preamble has a length of 839 complex numbers. D.I. 223 at 20. This is incorrect. Dr. Cooklev never provided this testimony regarding the length of a “preamble,” rather, Dr. Cooklev was asked about the length of a “preamble sequence.” D.I. 227 at A-0389, 178:1-9. [REDACTED]

[REDACTED]
[REDACTED]. As Dr. Cooklev testified, the purpose of the *ra-PreambleIndex* is to “uniquely identify that preamble sequence which will guarantee the terminal contention-free random access.” Ex. 6 at 168:13-18. Further, Dr. Cooklev

testified that “there is a one-to-one relationship between [the *ra-PreambleIndex* and preamble sequence], so the index uniquely identifies the sequence.” *Id.* at 174:6-23. Thus, a genuine issue of material facts precludes summary judgment of no literal infringement regarding whether the accused products send and receive a “dedicated preamble” [REDACTED]
[REDACTED]

a. Defendants’ attempt to limit the “dedicated preamble” to a preamble sequence asks the Court to impermissibly rewrite the claims

Defendants ask this Court to limit the “dedicated preamble” to a *dedicated preamble sequence*. This is nothing more than a belated attempt to raise an incorrect and untimely claim construction. While Defendants’ brief does not directly ask the Court to conduct a second claim construction proceeding, Defendants are essentially asking the Court for a second bite at the apple. There is no basis to limit the claimed “dedicated preamble” to a *preamble sequence*.

First, the evidence shows that the plain and ordinary meaning of “dedicated preamble” is not limited to a preamble sequence. Indeed, Defendants’ own experts agree—arguing on validity that one of ordinary skill would understand the term to be broader than a transmitted sequence. When Dr. Bims was asked about the “dedicated preamble,” he testified that a person of ordinary skill would understand the term would be “*anything* that can be configured to permit the terminal to access the target base station.” Ex. 11 at 110:24-111:4 (emphasis added).

Second, Defendants’ summary judgment motion is a belated claim construction argument raised only after the Defendants lost on 20 other terms they raised during the *Markman* process. Because the “dedicated preamble” is not subject to an actual dispute and was not raised in the *Markman* hearing, no construction is needed and a question of fact remains for the jury to determine infringement of the ’373 Patent.

i. The '373 Patent specification confirms that “dedicated preamble” is not limited to a preamble sequence

Even if the court were to entertain Defendants’ untimely claim construction argument, the construction is clearly contradicted by the evidence of record. First, Defendants’ construction violates black letter claim construction law because it reads out the preferred embodiment in the ’373 Patent. The specification of the ’373 Patent describes a problem in the prior art WCDMA system in which a *preamble sequence* is randomly selected using a signature “Si”—defined as an integer from 0 to 15. Ex. 3 at 3:31-33. During a prior art handover, one signature is selected by the mobile device to create the preamble sequence that will be transmitted by the mobile device in the handover process. *Id.* Problems arise during handover, however, because if “two or more UEs transmit the preamble of the same signature to the eNB at the same time, the eNB can not possibly determine which UE transmitted such preamble” due to collision. *Id.* at 6:45-49. The ’373 Patent then describes a preferred embodiment of the invention that solves this problem. In this embodiment, the target base station pre-allocates a signature for use by the mobile device, and the mobile device uses this “previously defined signature” to create the preamble sequence used to avoid collision and perform the handover. *Id.* at 6:50-54.

“[A] claim interpretation that excludes a preferred embodiment from the scope of the claim is rarely, if ever, correct.” *MBO Labs., Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1333 (Fed. Cir. 2007) (reversing summary judgment of non-infringement). This is because “it is unlikely that an inventor would define the invention in a way that excluded the preferred embodiment, or that persons of skill in this field would read the specification in such a way.” *Hoechst Celanese Corp. v. BP Chems. Ltd.*, 78 F.3d 1575, 1581 (Fed. Cir. 1996). Here, the ’373 Patent describes the target base station sending the “dedicated preamble” as a “previously defined signature.” Thus, the claimed “dedicated preamble” is not limited to a preamble

sequence because the '373 Patent describes preambles to include both signatures and sequences.

Id. at 2:60-67 (describing the prior art WCDMA standard where the “terminal first selects one access slot and one (preamble) signature, and transmits the preamble”); 6:40-42 (“[T]he UE may utilize a preamble which is selected from signatures contained in the UE.”); 6:45-49 (describing the prior art problem where “two or more UEs *transmit the preamble of the same signature*”); 7:31-33 (“Since the target eNB (14) already allocates a signature used in the preamble to the UE in the use of handover, the UE can be identified by the preamble.”). Thus, limiting the “dedicated preamble” to only a preamble sequence would impermissibly read out the embodiment.

ii. Defendants' own experts reject Defendants' proposed construction

Dr. Kakaes—the technical expert for HTC, Motorola, Samsung, ZTE, and Microsoft—stated in his opening report that “POSITAs would have understood the claim term ‘preamble’ to be broad enough to encompass *a code or signature.*” Ex. 10 ¶ 151 (emphasis added). Dr. Kakaes relied on two technical specifications from WCDMA to support his conclusion. The WCDMA standard makes clear that a *preamble sequence* is not the same as a *preamble signature*. Significantly, the WCDMA standard defines the *preamble sequence* as generated “from a *preamble scrambling code*” and “*a preamble signature*.” Ex. 10 ¶ 149; Ex. 20 at 20; *see also id.* at 17 (“The preamble signature s , $0 \leq s \leq 15$, points to one of the 16 nodes in the code-tree that corresponds to channelisation codes of length 16.”). Thus, the *preamble sequence* in WCDMA is a function of two variables, a *preamble scrambling code* and a *preamble signature*. Neither the scrambling code nor the signature in WCDMA are *preamble sequences*.

Apple’s expert, Dr. Bims, provided an even broader understanding of the term. When asked about the “dedicated preamble,” Dr. Bims testified that a one of ordinary skill would understand that the term would be “*anything* that can be configured to permit the terminal to access the target base station.” Ex. 11 at 110:24-111:4 (emphasis added). [REDACTED]

Significantly, both invalidity experts opine that the “dedicated preamble” limitation is met by disclosures of “codes” and “signatures,” which are not preamble sequences. For example, both experts point to the “spreading code word” in Hu as allegedly disclosing the “dedicated preamble” limitation. Ex. 12 ¶ 742; Ex. 10 ¶ 154. Hu does not, however, describe a “spreading code word” as a transmitted sequence. Instead, the “spreading code word” is referred to as one of many types of access resources. Ex. 13 at EW_DEFENDANTS 0001809; Ex. 14 ¶¶ 174-75. Nowhere does Hu describe any of these access resources as transmitted sequences.

As another example, Apple’s expert, Dr. Bims, points to UIUC codes from the WiMax standard as allegedly disclosing the claimed “dedicated preamble.” Ex. 11 at 194:16-19 (“Is it your opinion that the ranging codes are the dedicated preamble or is it that the UIUCs is the dedicated preamble? A. That, either one.”). Similar to the ra-PreambleIndex defined by the LTE standard, the WiMax standard defines the UIUC code as an integer value from 0 through 15 that represents the type of ranging to perform. Ex. 15 at 337. The UIUC code is not a preamble sequence. Further, Dr. Bims also relies on several other pieces of prior art that allegedly disclose the “dedicated preamble,” including a “logical channel defined by a code” in Etemad and a “particular (dedicated) RACH preamble signature” from Wang. Ex. 12 ¶¶ 901-02. The “signature” disclosed by Wang is similar to the signatures disclosed in the WCDMA standard and the signatures referred to by the ’373 Patent specification—signatures are not preamble sequences. And reading Etemad—as a WiMax patent—along with the WiMax standard, Etemad’s disclosure of a “logical channel defined by a code” is similar to the UIUC code defined in WiMax. These codes and signatures are not transmitted preamble sequences.

Despite this testimony—which Defendants did not provide to the Court—Defendants

nonetheless urge the Court to construe “dedicated preamble” more narrowly than its plain and ordinary meaning for purposes of non-infringement. The Federal Circuit rejected similar arguments in *Silicon Graphics, Inc. v. ATI Techs., Inc.*, 607 F.3d 784 (Fed. Cir. 2010), finding that it was proper for the district court not to construe a term where the expert applied a different claim construction only for validity. Specifically, the Federal Circuit found that for the “operating directly on” term, the “testimony of both sides’ experts at trial indicates that that term was not fundamentally in dispute, thus, it was proper for the district court not to construe it.” *Id.* at 798. “Only with reference to Lucas did Dr. Potel change his opinion and allege that ‘operating directly on’ was met where floating point numbers are taken through a circuit and come out as fixed-point.” *Id.* Because construction was offered only for invalidity purposes and “contradict[ed] the ordinary meaning of ‘operating directly on,’” the Federal Circuit found no *O2 Micro* problem where the district court gave the term its plain and ordinary meaning. *Id.*

Here, Defendants’ experts first offered a broad understanding of the term “dedicated preamble” in their opening expert reports on invalidity but improperly narrowed that understanding only for infringement purposes. Similar to *Silicon Graphics*, the Defendants cannot conjure up a claim construction dispute by applying different claim constructions for validity and infringement. Because Defendants’ experts agree for validity that “dedicated preamble” is not limited to a preamble sequence, no contrary construction is needed for Defendants’ non-infringement argument. *See Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1351 (Fed. Cir. 2001) (“[T]he claims must be interpreted and given the same meaning for purposes of both validity and infringement analyses.”).

“While the court must resolve actual disputes regarding the proper scope of a claim term,” the Court need not construe every term. *Summit 6, LLC v. Samsung Elecs. Co.*, 802 F.3d

1283, 1291 (Fed. Cir. 2015) (citing *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1360 (Fed. Cir. 2008)) (finding “the district court did not err in declining to construe the term”); *see also Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 2000) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”). In this case, the “dedicated preamble” is not subject to an actual dispute between the parties and does not need construction.

iii. Defendants’ attorney arguments are a belated attempt to conduct unnecessary claim construction and avoid infringement.

Defendants have waived this argument by not timely identifying the term during the *Markman* procedure—identifying 20 other terms for construction instead. As Evolved Wireless’s infringement contentions for the “dedicated preamble” have never changed, Defendants have no excuse for waiting until summary judgment to raise this claim construction dispute.

Evolved Wireless first identified the *ra-PreambleIndex* as the claimed “dedicated preamble” in its initial infringement contentions served on February 12, 2016. *See* Ex. 21 at Ex. 3. Under the Court’s scheduling order, the Defendants were required to identify contested terms to the Court by May 17, 2016. *See* D.I. 54. Instead of identifying the “dedicated preamble” as a contested term, the Defendants identified 20 other terms from the patents in suit for construction during the Court’s *Markman* process. Ex. 1; *see also* D.I. 54-1. After the Court adopted Evolved Wireless’s constructions for 22 of the 23 contested terms, Defendants now seek to raise this non-infringement claim construction argument on the eve of trial. *See* D.I. 110.

The Federal Circuit found it was unnecessary for the district court to conduct claim construction under similar circumstances in *Bettcher Indus., Inc. v. Bunzl USA, Inc.*, 661 F.3d 629 (Fed. Cir. 2011). In *Bettcher*, “the parties agreed to a schedule of disclosures” and the “district court issued a *Markman* order premised on the express belief that there were no other

claim construction disputes.” *Id.* at 640. Where the defendant did not raise the claim construction argument in the normal *Markman* proceeding, the Federal Circuit held that “the district court did not abuse its discretion in holding that Bunzl could not add new claim construction theories on the eve of trial.” *Id.* at 641; *see also Cent. Admixture Pharmacy Servs., Inc. v. Advanced Cardiac Sols., P.C.*, 482 F.3d 1347, 1356 (Fed. Cir. 2007) (“The district court found that [defendants] waived any argument with respect to this term by failing to raise it during the claim construction phase. We agree.”); *Sandisk Corp v. Memorex Prods., Inc.*, 415 F.3d 1278, 1292 (Fed. Cir. 2005) (finding no abuse of discretion where district court refused to consider untimely claim construction arguments raised “after the relevant cut-off dates under the Northern District’s Patent Local Rules and the trial court’s scheduling order”).

Thus, Defendants’ motion for summary judgment regarding literal infringement of the “dedicated preamble” limitation should be denied because (1) Defendants’ own experts agree the claimed “dedicated preamble” is not limited to a transmitted *preamble sequence*, (2) Defendants did not raise this claim construction argument in the *Markman* procedure required in the Scheduling Order, and (3) Defendants have offered no explanation for why they did not do so.

b. The ’097 Patent does not compel a narrower construction for “dedicated preamble.”

Defendants based their incorrect and untimely claim construction argument largely on the language of claims in another unasserted patent—U.S. Patent No. 8,219,097 (“the ’097 Patent”). *See Ex. 22.* Defendants claim that the ’097 Patent supports their proposed narrowing construction of the term “dedicated preamble” because the claims of the ’097 Patent also contain the term “index of the dedicated preamble.” Significantly, the term “index of the dedicated preamble” appears nowhere in the asserted ’373 Patent. Nevertheless, Defendants essentially ask this Court to construe the term “index of the dedicated preamble.” This exercise is neither

required under Federal Circuit precedent nor one that Defendants conducted themselves in their opening brief. Defendants essentially argue that construing “dedicated preamble” according to its plain and ordinary meaning would render superfluous the separate term “index of the dedicated preamble”—which appears only in the ’097 Patent. D.I. 223 at 27. This argument is unfounded and unsupported by Defendants because they failed to offer a construction of “index of the dedicated preamble” to demonstrate the scope of this term would be rendered superfluous.

First, Defendants’ reliance on *SightSound Technologies* for the proposition that claim differentiation should be used to differentiate claims across related patents is without merit. *See id.* *SightSound* only applied claim differentiation to claim terms within the same patent, and Defendants have cited *no authority* requiring the Court to differentiate claims in different patents.

Second, Defendants’ claim differentiation argument requires Defendants to have provided a construction of “index of the dedicated preamble” in order to determine if the term would be superfluous or redundant in light of the construction for “dedicated preamble” that their own experts offered. Defendants failed to provide this construction. Indeed, Defendants have not cited any intrinsic or extrinsic evidence to demonstrate the meaning of the term “index of the dedicated preamble” as used in the ’097 Patent, nor did Defendants ask Dr. Cooklev *any questions* in his deposition regarding the proper construction of this term. Without such construction, the Court is not able to make any determination of claim differentiation or determine any impact on the construction of “dedicated preamble.” Indeed, Defendants did not offer any such construction in support of this argument as the intrinsic record would not support such construction. As such, this argument is nothing more than a red herring for the Court.

Third, even a cursory review of the intrinsic record demonstrates that “index of the

“dedicated preamble” is used in the ’097 Patent refers to a variety of system information relating to the preambles available for contention-free handover, and does not limit the plain and ordinary meaning of the term “dedicated preamble”⁴ The ’097 Patent describes the problem where two terminals transmit the same preamble sequence during a handover at the same time, or a contention-based handover. Ex. 22 at 6:47-50. The invention of the ’097 Patent solves this problem by sending a message from the target base station to the mobile device which includes “system information of the target eNB (14).” *Id.* at 7:13-14. This “[s]ystem information transmitted from the [base station] may include signatures related information.” *Id.* at 6:41-44. The signatures are related to the preamble sequences that will be transmitted by the mobile device to the base station in the contention-free handover. *Id.* at 47-50. The term “index of the dedicated preamble” refers to system information regarding the preambles available for contention-free handover. Thus, “index of the dedicated preamble” is not rendered superfluous or redundant by the scope of the “dedicated preamble” proffered by Defendants’ experts.

Moreover, in context, the claims of the ’097 Patent may have a different scope than the ’373 Patent. Defendants urge the Court to construe the “dedicated preamble” claimed in the ’373 Patent based on differentiation of claims in the ’097 Patent. Claim differentiation is not required, however, where claim terms are not used in a consistent manner. As described by the Federal Circuit, the precise axiom of claim differentiation is that “[a] word or phrase *used consistently* throughout a claim should be *interpreted consistently*.” *Epcon Gas Sys., Inc. v. Bauer Compressors, Inc.*, 279 F.3d 1022, 1031 (Fed. Cir. 2002) (emphasis in original).

⁴ If the Court were to determine that claim construction must be performed for a term found in an unasserted patent, Evolved Wireless would request the opportunity to provide a more fulsome discussion of the intrinsic record and provide significant extrinsic evidence in support of the construction rather than within the confines of this summary judgment briefing.

Independent claim 1 of the '097 Patent claims "transmitting the dedicated preamble" by the mobile device to the target base station. The '373 Patent does not claim that transmitting the "dedicated preamble" by the mobile device to the target base station, but rather transmitting "preamble information" from the mobile device to the target base station. The term "dedicated preamble" is not being used consistently across the '373 Patent and '097 Patent. For purposes of claim differentiation, the patents claim different aspects of the inventions in the specification.

The Federal Circuit recently held that similar claim language in related patents may have different meanings because "surrounding claim language can affect the interpretation of a claim phrase." *InterDigital Commc'ns, Inc. v. ZTE Corp.*, No. 2016-2362, 2017 U.S. App. LEXIS 22002, at *13 (Fed. Cir. Nov. 3, 2017); *see also Wilson Sporting Goods Co. v. Hillerich Bradby Co.*, 442 F.3d 1322, 1328 (Fed. Cir. 2006) (reversing district court's construction of the term "gap" where, in context, the term took on different meanings) (citing *ACTV, Inc. v. Walt Disney Co.*, 346 F.3d 1082, 1088 (Fed. Cir. 2003) ("The context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms.")); *STV Asia Ltd. v. PRN Corp.*, No. 06-1664 JCS, 2006 U.S. Dist. LEXIS 95523, at *40-41 (N.D. Cal. Feb. 15, 2007) (construing the term "playlist" differently in context). Indeed, Dr. Cooklev noted this distinction in his deposition when Defendants asked him about the meaning of "dedicated preamble" in the '097 Patent. The doctrine of claim differentiation and the cases cited by Defendants on this issue allow for a patentee to make such distinctions as patentees can have related patents that claim a narrower scope of the invention as compared to other related patents.

Thus, Defendants' argument regarding the alleged import or impact of the meaning of a term not found in the '373 Patent lacks merit as there is no authority requiring the Court to construe a term found only in an unasserted patent and conduct an analysis that Defendants

themselves have not offered to the Court. Moreover, a cursory review of the intrinsic record demonstrates that the scope of “index of the dedicated preamble” is not rendered superfluous or redundant by the proper construction of “dedicated preamble” that Defendants’ experts stated in their invalidity reports.

2. Substantial Evidence Shows Defendants Infringe the “Dedicated Preamble” Limitation Under the Doctrine of Equivalents

Even if the Court were to allow Defendants’ untimely claim construction argument and further narrowly construes “dedicated preamble” to cover only a transmitted *preamble sequence*, questions of fact remain regarding infringement under the doctrine of equivalents. [REDACTED]

[REDACTED] Second, Evolved

Wireless did not waive its infringement theory under the doctrine of equivalents—[REDACTED]

[REDACTED] Finally, prosecution history estoppel does not bar the doctrine of equivalents because the amendment Defendants rely on did not narrow the claim scope.

a. [REDACTED]

In fact, substantial evidence regarding the operation of the LTE standard establishes that the “dedicated preamble” limitation is infringed under the doctrine of equivalents, even under Defendants’ improperly narrow interpretation. Thus, Defendants’ motion should be denied.

This case is again similar to *EMC Corp. v. Pure Storage, Inc.*, where the court denied summary judgment because a genuine issue of material fact existed for the jury whether an index

could meet the claim term “returning the identifier.” 154 F. Supp. 3d at 96. “Relying on Mr. Jestice’s testimony, a jury could reasonably conclude that returning an index representing the identifier either literally satisfies the claim language ‘returning the identifier’ or satisfies it under the doctrine of equivalents.” *Id.* Here, Dr. Cooklev has offered testimony that, in context of the “dedicated preamble” limitation, [REDACTED]

[REDACTED] amounts to only an “insubstantial difference.” Ex. 2 ¶ 984 (emphasis added). [REDACTED]
[REDACTED]
[REDACTED]

As such, substantial evidence supports infringement of the “dedicated preamble” limitation under the doctrine of equivalents. At a minimum, a genuine issue of material fact remains for trial. *EMC Corp.*, 154 F. Supp. 3d at 96; *see also In re Katz Interactive Call Processing Patent Litig.*, No. MDL 2:07-ML-1816-C-RGK (FFMx), 2010 U.S. Dist. LEXIS 144764, at *166 (C.D. Cal. Dec. 3, 2010) (finding question of fact existed on DOE where expert offered evidence that the difference between the claims and the equivalent “is not substantial”); *Smith & Nephew, Inc. v. Arthrex, Inc.*, No. 2:07-cv-335-TJW-CE, 2010 U.S. Dist. LEXIS 10257, at *21 (E.D. Tex. Feb. 5, 2010) (finding “that there is a genuine issue of fact as to whether the RetroButton infringes the asserted claims under the doctrine of equivalents”).

b. Evolved Wireless properly put Defendants on notice of infringement of the “dedicated preamble” limitation under the doctrine of equivalents.

Evolved Wireless’s initial infringement contentions, served on February 12, 2016, identified the *ra-PreambleIndex* defined in the LTE standards as evidence of infringement for the “dedicated preamble” limitation. Ex. 21 at Ex. 3. Evolved Wireless also put Defendants on notice that infringement would be shown “either by literal infringement or infringement under

the doctrine of equivalents.” *Id.* at 2. Given Defendants’ failure to substantively answer Evolved Wireless non-infringement interrogatory, Evolved Wireless sufficiently put Defendants on notice of its theories of infringement and did not waive infringement under the doctrine of equivalents.

See Probatter Sports, LLC v. Sports Tutor, Inc., No. 3:05-cv-01975-VLB, 2015 U.S. Dist. LEXIS 92107, at *32-33 (D. Conn. July 15, 2015) (finding a DOE theory raised for the first time when defendant moved for summary judgment of literal infringement was proper because “there was no explicit dispute” as to the literal meaning of the claims until summary judgment).

Shortly after Evolved Wireless served its initial infringement contentions on February 12, 2016, Evolved Wireless served its first set of interrogatories on Defendants on February 15, 2016. Ex. 23. Interrogatory number 2 asked for “the factual and legal basis for Your contention of non-infringement, including whether or not You contend an accused product that practices or implements the portions of the LTE standard identified in Evolved Wireless’s infringement contention does not infringe the asserted patents.” *Id.* Defendants refused to substantively answer Interrogatory number 2, and after Evolved Wireless moved to compel an answer, Defendants argued that “Plaintiff’s Interrogatory No. 2 is premature because Evolved has not yet explained how it believes the asserted claims read on Defendants’ products and also because it seeks information Defendants do not possess,” [REDACTED] *See* D.I. 59 at 1-2.

Even after Evolved Wireless served its final infringement contentions on January 27, 2017

[REDACTED] Defendants still did not provide a substantive response to Interrogatory number 2. *See, e.g.*, Ex. 24.

Here, where the Defendants refused to answer Evolved Wireless’s non-infringement interrogatory, Evolved Wireless was unaware of any disputed infringement issue and only learned of Defendants’ non-infringement arguments through depositions—after the date that

Evolved Wireless served its final infringement contentions. After learning of these late and undisclosed non-infringement theories, Evolved Wireless included a substantial analysis of infringement under the doctrine of equivalents in Dr. Cooklev's opening expert report, and Defendants' experts rebutted Dr. Cooklev's analysis in their responsive reports. *See, e.g.*, Ex. 2 ¶¶ 980-984; Ex. 25 ¶¶ 226-29. Under these circumstances, Evolved Wireless did not waive its theory of infringement for the "dedicated preamble" limitation under the doctrine of equivalents.

The cases relied on by Defendants to support its waiver argument are distinguishable. For example, in *Walker*, infringement under the doctrine of equivalents was used to accuse additional products of infringement after discovery had closed and would have required additional discovery into those new products. *See Walker Digital, LLC v. Google Inc.*, No. 11-309-SLR, 2013 U.S. Dist. LEXIS 83860, at *6-7 (D. Del. June 14, 2013); *Inventio AG v. ThyssenKrupp Elevator Corp.*, No. 08-00874-RGA, 2014 U.S. Dist. LEXIS 12815, at *14-15 (D. Del. Feb. 3, 2014) (distinguishing *Walker* "where the new infringement theory also accused new devices and thus there was additional discovery that would have needed to be conducted"). In *Teashot*, neither the initial nor the supplemental infringement contentions alleged infringement under the doctrine of equivalents, and in *St. Clair*, the doctrine of equivalents was only alleged in a supplemental expert report served after the original deadline for expert reports. *Teashot LLC v. Green Mountain Coffee Roasters, Inc.*, 595 F. App'x 983, 987 (Fed. Cir. 2015); *St. Clair Intellectual Prop. Consultants, Inc. v. Matsushita Elec. Indus. Co.*, No. 04-1436-LPS, 2012 U.S. Dist. LEXIS 40103, at *17-21 (D. Del. March 26, 2012).

In this case, Defendants have always been on notice since Evolved Wireless's initial infringement contentions that the claimed "dedicated preamble" was infringed by the *PreambleIndex* defined in the LTE standard, under either literal infringement or infringement

under the doctrine of equivalents. Yet Defendants chose to wait until after the Court’s *Markman* hearing and after Evolved Wireless served its final infringement contentions to dispute literal infringement of the term. There is no waiver under these facts.

Even if the Court finds that Evolved Wireless did not timely allege infringement under the doctrine of equivalents, Defendants motion should still be denied because they have suffered no prejudice. Relying on the same portions of the LTE standard identified in both the initial and final infringement contentions, Evolved Wireless timely alleged literal infringement and infringement under the doctrine of equivalents in its opening expert report on infringement. Defendants’ experts responded to these allegations in rebuttal reports. Ex. 25 ¶¶ 226-29. Defendants also deposed Dr. Cooklev on this issue. Ex. 6 at 179:21-180:25. Defendants have not alleged that they require additional discovery and Defendants have already responded to the infringement theories with their own expert reports. *See Inventio AG v. ThyssenKrupp Elevator Corp.*, No. 08-00874-RGA, 2014 U.S. Dist. LEXIS 12815, at *14-15 (D. Del. Feb. 3, 2014) (finding no prejudice where no additional discovery was required and the defendant answered the DOE theory in its expert reports); *Am. Med. Sys., Inc. v. Laser Peripherals, LLC*, 712 F. Supp. 2d 885, 908 (D. Minn. 2010) (declining to strike untimely infringement theories under the doctrine of equivalents where the defendant responded to the theory in the non-infringement expert report). As such, Defendants’ motion for summary judgment should be denied.

c. Infringement under the doctrine of equivalents is not barred by prosecution history estoppel.

Prosecution history estoppel only applies when the patent claim is narrowed during prosecution, and Defendants do not show any narrowing of claim scope when the “dedicated preamble” limitation was added to the claims. Indeed, as described during the interview with the examiner, the “dedicated preamble” limitation was added to the claims only to “clarify subject

matter”—not to narrow the claims in light of a substantial issue of patentability over the cited prior art. As such, prosecution history estoppel does not bar the doctrine of equivalents here.

Prosecution history estoppel limits the doctrine of equivalents “when a patent claim is narrowed during prosecution.” *Voda v. Cordis Corp.*, 536 F.3d 1311, 1324 (Fed. Cir. 2008). An amendment in prosecution “may be presumed to be a general disclaimer of the territory between the original claim and the amended claim,” but the presumption can be overcome by showing, among other things, “that the rationale underlying the amendment bore ‘no more than a tangential relation to the equivalent in question.’” *Id.* at 1325 (citing *Festo Corp v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 740-41 (2002)).

In this case, the estoppel presumption does not apply because the “dedicated preamble” limitation did not narrow the scope of the claims. As the applicant explained during the interview with the examiner, the proposed “dedicated preamble” amendment only sought to “clarify subject matter” of the claims, not to narrow them. D.I. 227 at A-0190. “The first question in a prosecution history estoppel inquiry is whether an amendment filed in the Patent and Trademark Office (‘PTO’) has narrowed the literal scope of a claim.” *Festo Corp v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 344 F.3d 1359, 1366 (Fed. Cir. 2003) (en banc). “If the amendment was not narrowing, then prosecution history estoppel does not apply.” *Id.*

Significantly, none of the prior art cited by the examiner included either a dedicated preamble sequence or a dedicated preamble index. *See* D.I. 227 at A-0135-38 (discussing Samuel and Schwarz); A-0182-87 & A-0203 (describing Koo and Benedettis) A-0228 (describing Li); *see, e.g., Keystone Driller Co. v. Nw. Eng’g Corp.*, 294 U.S. 42, 48 (1935) (applying estoppel where the allegedly infringing equivalent was outside the scope of the amended claims but within the scope of the prior art that formed the basis of the examiner’s rejection). As such, the

amendment adding “dedicated preamble” to the claims was not a narrowing amendment made to overcome disclosures in the prior art and does not preclude infringement under the doctrine of equivalents.

Even if the amendment did narrow the claims, the amendment bears no more than a tangential relation to the equivalent in question. *See Smart Vent, Inc. v. USA Floodair Vents, Ltd.*, 193 F. Supp. 3d 395, 422 n.42 (D.N.J. 2016) (declining to apply prosecution history estoppel to a narrowing amendment because the equivalent pull tabs “bore at most a tangential relation” to the amendment). Indeed, there is no difference in patentability of the claims over the references considered during prosecution whether the “dedicated preamble” limitation is a preamble sequence or a preamble index—both a dedicated preamble sequence and a dedicated preamble index sent to the mobile device from the source base station serve the same function and accomplish the exact same result of preventing collision during a handover. *See* Ex. 2 ¶ 984. Thus, as a matter of law, prosecution history estoppel does not bar the doctrine of equivalents.

3. Substantial Evidence Shows Defendants Infringe the “Used Only for a Specific Terminal” Limitation

In another attempt to avoid an infringement verdict, Defendants created an additional non-infringement argument based on the “used only for a specific terminal” limitation. This argument is without merit and do not entitle Defendants’ to summary judgment. Instead, the evidence relied on by Defendants creates a genuine issue of material fact for trial.



██████████ Yet, Defendants fail to provide the Court with any evidence that these hypotheticals are actually implemented in the accused products.

Nevertheless, a genuine issue of material fact exists as there is competing expert testimony on this issue that is properly resolved at trial. When asked about the “used only for a specific terminal” limitation, Dr. Cooklev testified that it “means that the preamble is intended to ensure that when the preamble sequence is sent by that same specific terminal, the specific terminal will be ensured contention-free random access.” Ex. 6 at 243:25-244:5. As Dr. Cooklev explained earlier in his deposition, there are “64 different sequences that are defined in every cell.” *Id.* at 180:22-25. ██████████

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Thus, according to Dr. Cooklev, Defendants’ products infringe the ’373 Patent ██████████

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Dr. Cooklev’s testimony directly contradicts Dr. Bims and Dr. Kakaes regarding the operation of the LTE standard and creates a genuine issue of material fact properly resolved at trial.

C. Substantial Evidence Precludes Summary Judgment of Non-Infringement for the '236 Patent

The asserted claims of the '236 Patent are limited to “transmitting the data stored in the Msg3 buffer” in response to receiving an uplink grant on the random access response (“RAR”) message. Ex. 2 ¶ 181; *see also* Ex. 16 at Fig. 9. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Defendants’ argument fails for two reasons. First, Defendants are essentially asking this Court to broaden the claimed “transmitting” steps to include “retransmission,” an argument that is both waived and legally improper as it would impermissibly expand the scope of the claim term beyond its plain and ordinary meaning. Second, even under Defendants’ improper construction, there exists genuine issues of material fact as the evidence cited by Defendants does not support their assertion and Evolved Wireless’s expert disagrees with Defendants. Defendants’ motion should be denied.

4. Defendants’ “Retransmission” Argument Is Both Waived and Legally Improper as it Would Impermissibly Expand the Scope of the Asserted Claims.

Defendants’ argument that the accused products do not infringe the '236 Patent because of the retransmission scheme defined by the LTE standard asks this Court to broaden the scope of the '236 Patent in a manner that would allow “transmission” to include “retransmission.” This argument is both waived and legally improper, as the intrinsic evidence establishes that the plain and ordinary meaning of “transmission” does not include “retransmission.”

a. Defendants Waived Their “Retransmission” Claim Construction Argument.

As detailed above, the parties briefed an extensive *Markman* proceeding through which this Court construed 23 disputed claim terms. *See* D.I. 110. The Defendants lost 22 of those 23

claim terms. *Id.* Tellingly, despite previously offering 20 terms for construction by the Court (including 11 terms from the '236 Patent), the Defendants saw no need to raise the “transmitting” termss during the *Markman* proceeding. Rather, Defendants waited until the summary judgment phase to attempt to expand the definition of the terms well past their reasonable scope in a attempt to avoid infringement. By waiting until the summary judgment phase, and failing to raise the terms as part of the Court’s *Markman* process, Defendants waived their argument that “transmission” also includes “retransmission” and Defendants’ motion should be denied. *See Cent. Admixture Pharmacy Servs., Inc. v. Advanced Cardiac Sols., P.C.*, 482 F.3d 1347, 1356 (Fed. Cir. 2007) (“The district court found that [defendants] waived any argument with respect to this term by failing to raise it during the claim construction phase. We agree.”).

b. Even if Defendants Did Not Waive Their “Retransmission” Argument, the '236 Patent Claims Do Not Include Retransmission.

Defendants’ motion fails to provide any evidence, intrinsic or extrinsic, that supports their interpretation of the “transmitting” steps to include “retransmission.” Indeed, the '236 Patent specification and preferred embodiment distinguish transmissions from retransmissions, such that the claims of the '236 Patent only include “transmitting.” Further, the LTE standard itself distinguishes transmission from retransmission. *See, e.g.*, D.I. 227 at A-0866-67. Defendants’ interpretation should be rejected because it is not supported by any evidence.

A claim term is given its plain and ordinary meaning in context and “after reading the entire patent.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1321 (Fed. Cir. 2005) (en banc); *see also Netword, LLC v. Centraal Corp.*, 242 F.3d 1347, 1352 (Fed. Cir. 2001) (“The claims are directed to the invention that is described in the specification; they do not have meaning removed from the context from which they arose.”). In their summary judgment brief, Defendants attempt to broaden the scope of the claimed “transmission” beyond the context allowed by the intrinsic

record. While the claimed “transmitting” steps “might theoretically, in the abstract, be given such a broad meaning,” Defendants’ position “is completely untethered to the context of the invention in this case.” *Eon Corp. IP Holdings LLC v. Silver Spring Networks, Inc.*, 815 F.3d 1314, 1321 (Fed. Cir. 2016) (rejecting broad constructions for “portable” and “mobile” to include anything that was capable of being moved).

After “receiving an uplink grant,” the claimed method of the ’236 Patent determines “whether there is data stored in a message 3 (Msg3) buffer” and then “*transmit[s]* the data stored in the Msg3 buffer . . . if there is data stored in the Msg3 buffer when receiving the UL Grant signal on the specific message and the specific message is the random access response message.” Ex. 16 at Cl. 1 (emphasis added). Otherwise, the claimed method “*transmit[s]* new data to the base station in correspondence with the UL Grant.” *Id.* (emphasis added). No asserted claim of the ’236 Patent uses the term “retransmission.”

Consistent with the claim language, the specification distinguishes the claimed “transmitting the data stored in the Msg3 buffer” and “transmitting new data” steps from retransmission. Figure 9, described as the preferred embodiment, shows that step S908 transmits “the data stored in the Msg3 buffer” and step S909 transmits “new data.” *Id.* at 13:60-14:14. These steps are performed only if certain conditions are met, including if an uplink grant was received in step S902 and if there “there is data in Msg3 buffer” in steps S904 and S906. *Id.* at Fig 9; 13:50-67. The claims of the ’236 Patent are addressed to the transmission steps S908 and S909. These steps are distinguished from both retransmissions in steps S903 and S905, which occur only if an uplink grant is not indicated or if the four parameters in step S905 are not met (i.e., outside the scope of the asserted claims). *See id.* at Fig. 9; 13:44-49, 62-65. Likewise, Fig. 6 also shows that transmission is separate and distinct from retransmission. *Id.* at 10:12-16, 27-32.

The claims and specification are clear that transmission is not the same as retransmission.

In an attempt to salvage their argument, Defendants rely on statements made by Evolved Wireless before the Patent Trial and Appeals Board (PTAB). Defendants' reliance is misplaced, as Defendants do not provide the full context for the Court. D.I. 223 at 30 (citing D.I. 227 at A-1193-94). Shortly after the cited portion, the true context of Evolved Wireless's position is brought to light when Evolved Wireless's counsel clarifies, in response to a PTAB judge's question, that "retransmission" is not claimed by the '236 Patent.

JUDGE BOUCHER: Counsel, which line are you looking at exactly on Slide 15 here? Because it's got these nested if-then-else statements in the pseudocode. And the I guess third line, not counting the double line at the bottom, from the bottom says, if the HARQ buffer of the HARQ process corresponding to this TTI is not empty, then you have a retransmission. Is that the line you're looking at or are you looking at something else that says transmit no matter what?

MR. SCHULTZ: So it's actually the step above. *So that bottom part under the else, Your Honor, is for a retransmission process and that's not what is at issue here.*

Ex. 26 at 49 (emphasis added). Defendants' misleading characterization of Evolved Wireless's position does not support a broad construction of the claimed "transmitting" steps. Defendants failed to bring these statements to the Court's attention. Defendants' arguments to expand the scope of the claimed "transmitting" steps is not supported in the context of the claims or the specification and should be denied. *See Eon Corp.*, 815 F.3d at 1321.

c. The LTE Standard Also Distinguishes Transmission from Retransmission

The clear distinction between "transmission" claimed in the '236 Patent and "retransmission" is further supported by the extrinsic record before the court. Specifically, the LTE standard itself distinguishes between initial transmissions and retransmission.

As seen below, the LTE standard delineates between transmission and retransmission. D.I. 227 at A-0866 (emphasis added). Following very closely with the '236 Patent specification, the LTE standard explains the describes, shown in red, the claimed transmission steps of "obtain the

MAC PDU to *transmit* from the Msg3 buffer” or “obtain the MAC PDU to *transmit* from the ‘Multiplexing and assembly’ entity.” *Id.* at A-0866 (emphasis added). Significantly, retransmission (shown in blue) occurs separate and apart from the transmission steps. Further, the next section in the LTE standard, TS 36.321 V9.3.0, § 5.4.2.2, explicitly separates the operation of the HARQ process between situations where “the HARQ entity requests a *new transmission*” and where “the HARQ entity requests a *retransmission*.” *Id.* (emphasis added). The LTE standard repeatedly describes “transmission” as something different than “retransmission.” As the asserted claims of the ’236 Patent do not include “retransmission,” which is described as a separate operation from the claimed “transmission,” Defendants’ argument for non-infringement is baseless and cannot support summary judgment. Thus, the Motion should be denied.

For each TTI, the HARQ entity shall:

- identify the HARQ process associated with this TTI;
- if an uplink grant has been indicated for this TTI:
 - if the received grant was not addressed to a Temporary C-RNTI on PDCCH and if the NDI provided in the associated HARQ information has been toggled compared to the value in the previous transmission of this HARQ process; or
 - if the uplink grant was received on PDCCH for the C-RNTI and the HARQ buffer of the identified process is empty; or
 - if the uplink grant was received in a Random Access Response:
 - if there is a MAC PDU in the Msg3 buffer and the uplink grant was received in a Random Access Response:
 - obtain the MAC PDU to transmit from the Msg3 buffer;
 - else:
 - obtain the MAC PDU to transmit from the “Multiplexing and assembly” entity;
 - deliver the MAC PDU and the uplink grant and the HARQ information to the identified HARQ process;
 - instruct the identified HARQ process to trigger a new transmission.
 - else:
 - deliver the uplink grant and the HARQ information (redundancy version) to the identified HARQ process;
 - instruct the identified HARQ process to generate an adaptive retransmission.
 - else, if the HARQ buffer of the HARQ process corresponding to this TTI is not empty:
 - instruct the identified HARQ process to generate a non-adaptive retransmission.

5. There is a question of fact regarding whether “retransmission” involves sending the claimed “data stored in the MSg3 buffer”.

Even under Defendants’ improper construction, there is a question of fact that exists that precludes summary judgment. [REDACTED]

[REDACTED]. In particular, Defendants rely on section 5.4.2.2 of TS 36.321, but this section does not require that data from the Msg3 buffer is sent during retransmission. D.I. 223 at 32. [REDACTED]

[REDACTED] As such, summary judgment is not proper based on this inconclusive evidence.

[REDACTED]
At a minimum, Dr. Cooklev’s testimony and the relevant technical standard establish that there is competing evidence and a genuine issue of material fact to be resolved at trial.

VI. Conclusion

For the reasons stated above, Defendants’ summary judgment motion should be denied.

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Respectfully submitted,

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